

Spotted Headstander (*Chilodus punctatus*)

Ecological Risk Screening Summary

U.S. Fish & Wildlife Service, April 2014
Revised, January 2016, November 2017
Web Version, 9/10/2018



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1 Native Range and Status in the United States

Native Range

From Froese and Pauly (2017):

“South America: Amazon River basin, Apeú River, Pará State, Guyana, Suriname, and western Orinoco River basin.”

From Eschmeyer et al. (2017):

“Distribution: Widespread in South America: Brazil, Bolivia, Colombia, Ecuador, Guyana, Peru and Suriname.”

Chilodus punctatus is native to the Acre, Amazonas, Pará, and Rondônia states of Brazil (Froese and Pauly 2017).

Status in the United States

No records of *Chilodus punctatus* in the wild in the United States were found.

New Mexico lists *Chilodus punctatus* as a semi-domesticated animal that does not require an importation permit (New Mexico Department of Game and Fish 2010).

Means of Introductions in the United States

No records of *Chilodus punctatus* in the United States were found.

Remarks

No additional remarks.

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

According to Eschmeyer et al. (2017), *Chilodus punctatus* Müller & Troschel 1844 is the valid name for this species; it is also the original name.

From ITIS (2014):

“Kingdom Animalia

Subkingdom Bilateria

Infrakingdom Deuterostomia

Phylum Chordata

Subphylum Vertebrata

Infraphylum Gnathostomata

Superclass Osteichthyes

Class Actinopterygii

Subclass Neopterygii

Infraclass Teleostei

Superorder Ostariophysi

Order Characiformes

Family Anostomidae

Subfamily Chilodontinae

Genus *Chilodus*

Species *Chilodus punctatus* Müller and Troschel, 1844”

Size, Weight, and Age Range

From Froese and Pauly (2017):

“Max length : 18.0 cm TL male/unsexed; [Giarrizzo et al. 2015]; max. published weight: 70.50 g [Giarrizzo et al. 2015]”

Environment

From Froese and Pauly (2017):

“Freshwater; pelagic; pH range: 6.0 - 7.0; dH range: ? - 10. [...]; 24°C - 28°C [assumed to be recommended aquarium temperature] [Riehl and Baensch 1991]”

Climate/Range

From Froese and Pauly (2017):

“Tropical; [...]”

Distribution Outside the United States

Native

From Froese and Pauly (2017):

“South America: Amazon River basin, Apeú River, Pará State, Guyana, Suriname, and western Orinoco River basin.”

Introduced

Froese and Pauly (2017) list an introduction to the Philippines but no further information other than the vector was given. There is no indication that this introduction resulted in an established wild population.

Xiong et al. (2015) list *Chilodus punctatus* as present in China due to the aquarium trade but do not give an indication if there are wild populations established.

Means of Introduction Outside the United States

From Froese and Pauly (2017):

“Reason: ornamental”

Short Description

From Isbrücker and Nijssen (1988):

“Morphometric and meristic data of 62 specimens from several localities, SL up to 78.5 mm. Body depth 2.7-3.2 in SL; head length 3.3-3.8 in SL; snout length 3.0-3.5 in head length; orbital diameter 2.8-3.4 in head length; length dorsal fin 2.8-3.2 in SL; LI 24-29.”

Biology

From Froese and Pauly (2017):

“Feeds on worms, crustaceans, insects and plant matter.”

Human Uses

From Froese and Pauly (2017):

“Aquarium: commercial”

From Chapman et al. (1994:30):

“List of freshwater species declared imported into the U.S.A. during October 1992. [...] *Chilodus punctatus* [...]”

Peru exports live *Chilodus punctatus* for the ornamental aquarium trade (Froese and Pauly 2017).

Brazil has approved *Chilodus punctatus* for export for the ornamental trade (Prang 2008).

Chilodus punctatus is present in China for the ornamental trade (Xiong et al. 2015).

Chilodus punctatus is present in the ornamental trade in Singapore (Youguang 2014).

Diseases

No records of OIE reportable diseases were found.

From Froese and Pauly (2017):

“Bacterial Infections (general), Bacterial diseases
Nematode Infection (general), Parasitic infestations (protozoa, worms, etc.)”

Poelen et al. (2014) lists *Octospiniferoides australis* as a parasite of *Chilodus punctatus*.

Fujimoto et al. (2013) lists *Quadrigyrus torquatus*, *Q. nickoli*, *Q. brasiliensis*, unidentified nematodes, and unidentified acanthocephalans as parasites of *Chilodus punctatus*.

Threat to Humans

From Froese and Pauly (2017):

“Harmless”

3 Impacts of Introductions

No records of introductions to the wild of *Chilodus punctatus* were found, therefore there is no information on impacts of introductions.

4 Global Distribution

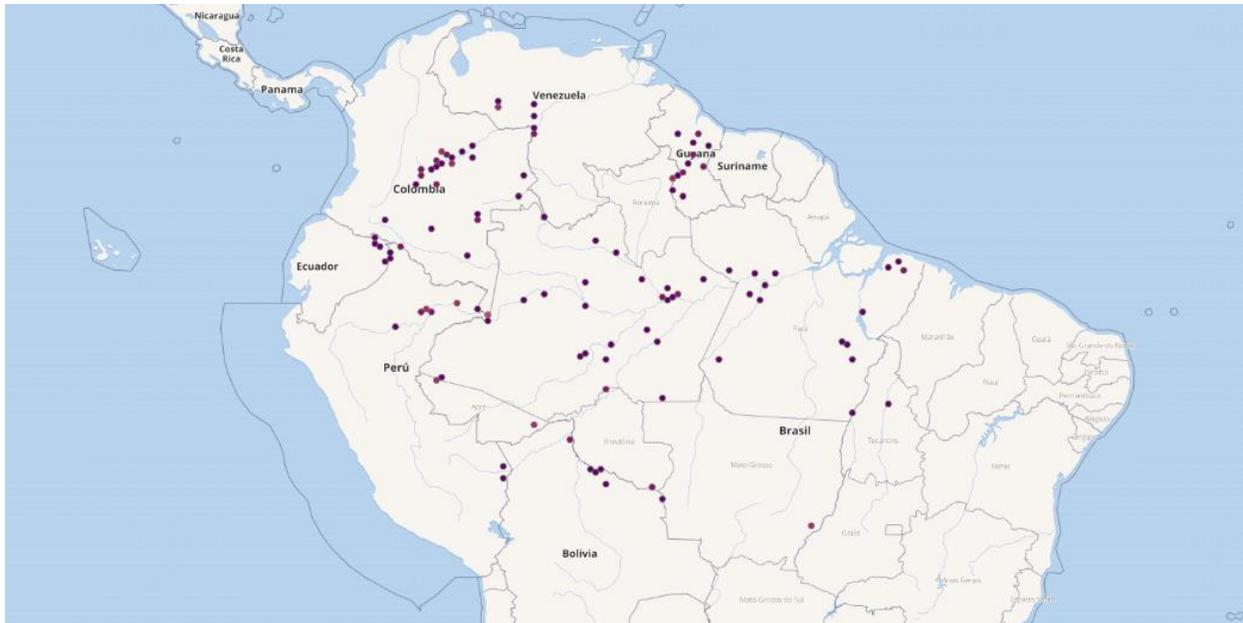


Figure 1. Known global distribution of *Chilodus punctatus*. Locations are in Ecuador, Colombia, Venezuela, Guyana, Peru, Brazil, and Bolivia. Map from GBIF Secretariat (2017).



Figure 2. Known global distribution of *Chilodus punctatus*. Locations are in Ecuador, Colombia, Venezuela, Guyana, Peru, Brazil, and Bolivia. Map from VertNet (2017).

5 Distribution Within the United States

No records of *Chilodus punctatus* in the United States were found.

6 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Chilodus punctatus* was medium for the southern part of Florida, small areas of the Gulf Coast and northern Pacific Coast. The climate match was low everywhere else. The Climate 6 score (Sanders et al. 2014; 16 climate variables; Euclidean distance) for the contiguous United States was 0.003, low, and Florida had an individually high climate match.

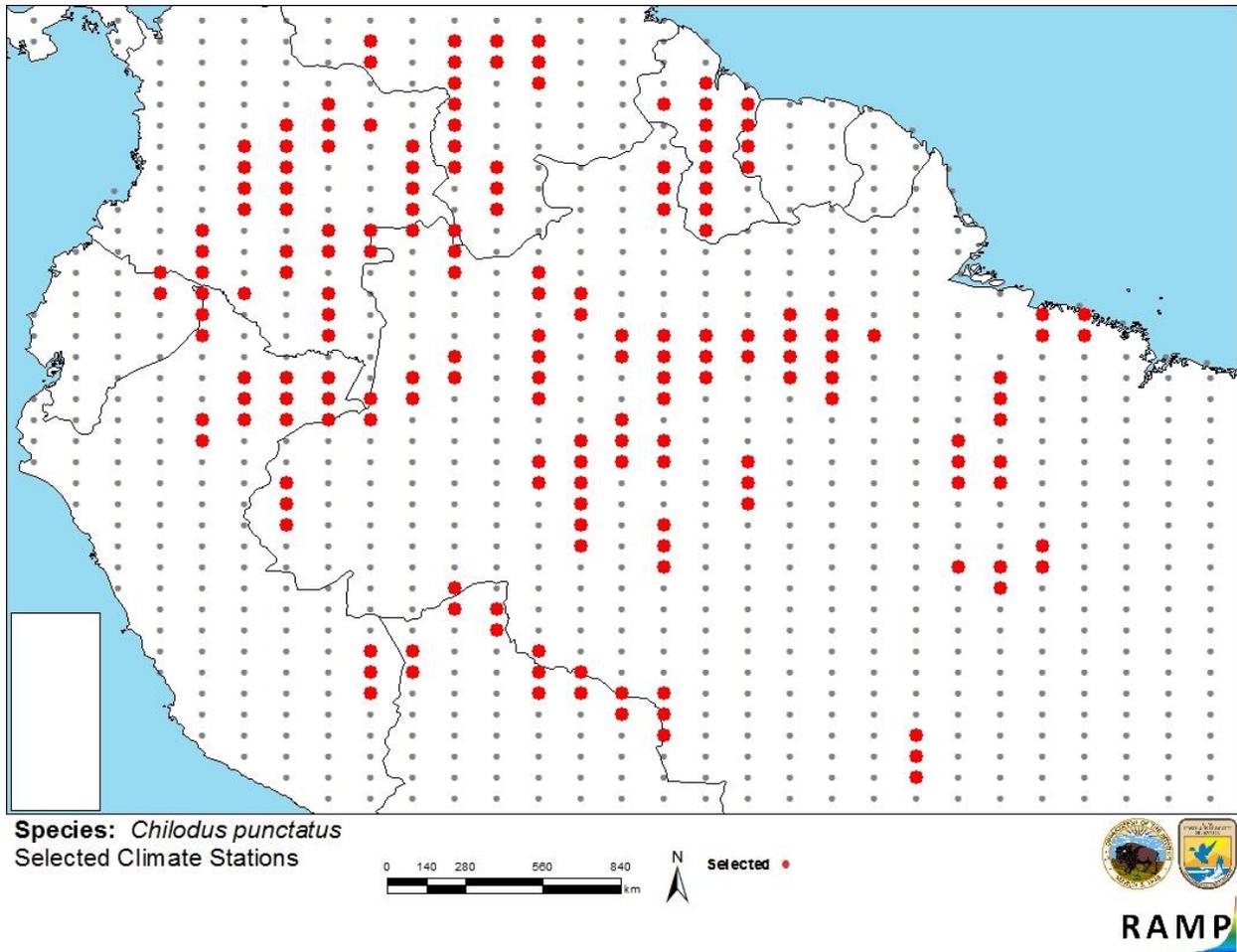


Figure 3. RAMP (Sanders et al. 2014) source map showing weather stations in northern South America selected as source locations (red; Ecuador, Colombia, Venezuela, Guyana, Suriname, Peru, Brazil, Bolivia) and non-source locations (grey) for *Chilodus punctatus* climate matching. Source locations from GBIF Secretariat (2017) and VertNet (2017).

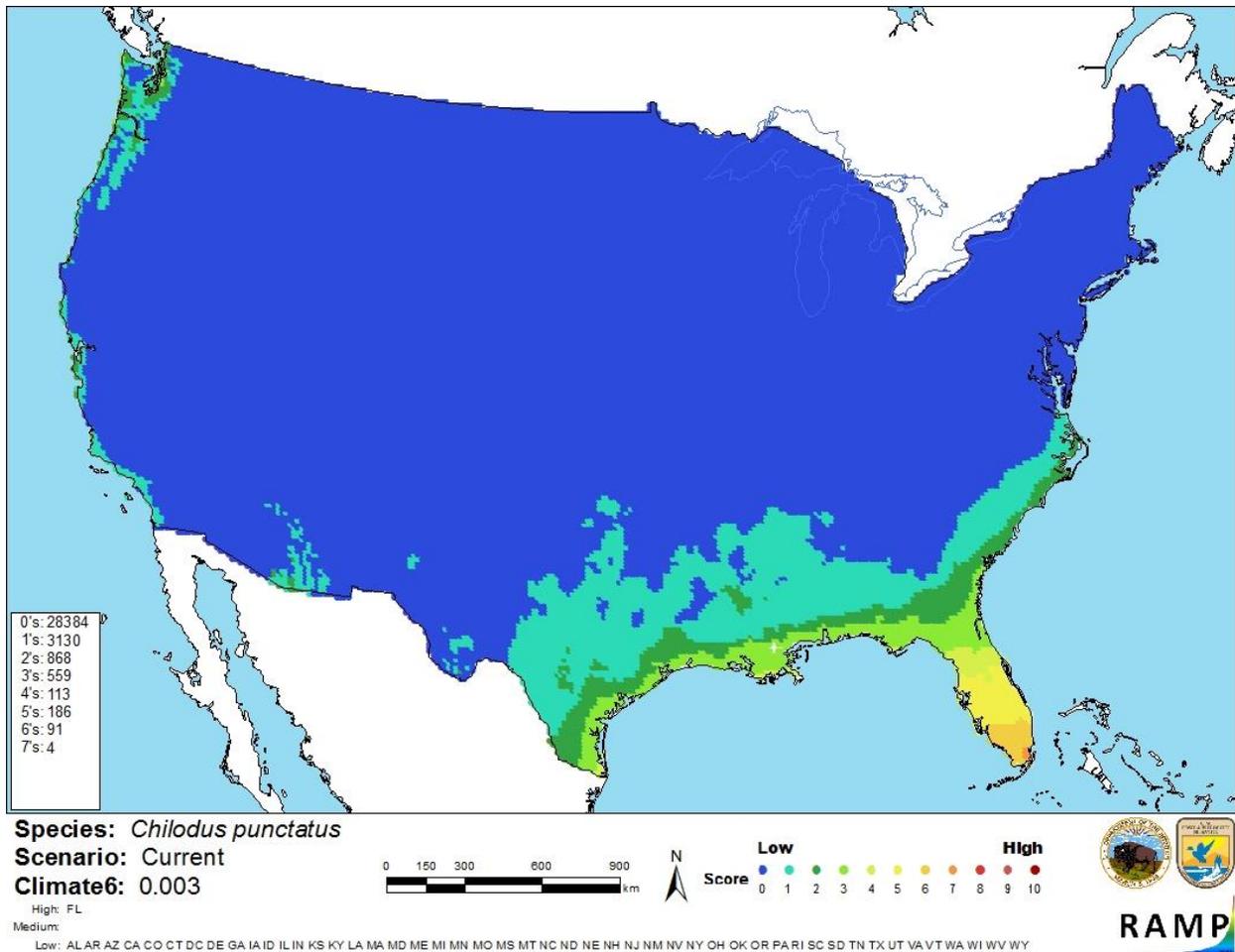


Figure 4. Map of RAMP (Sanders et al. 2014) climate matches for *Chilodus punctatus* in the contiguous United States based on source locations reported by GBIF Secretariat (2017) and VertNet (2017). 0 = Lowest match, 10 = Highest match. Counts of climate match scores are tabulated on the left.

The High, Medium, and Low Climate match Categories are based on the following table:

Climate 6: Proportion of (Sum of Climate Scores 6-10) / (Sum of total Climate Scores)	Climate Match Category
$0.000 \leq X \leq 0.005$	Low
$0.005 < X < 0.103$	Medium
≥ 0.103	High

7 Certainty of Assessment

The certainty of this assessment is medium. There was adequate biological and ecological information available about *Chilodus punctatus*. One record of possible introduction was found but there were no details available. No records of impacts were found. Records of this species being exported and imported for the aquarium trade were found but no details were available.

8 Risk Assessment

Summary of Risk to the Contiguous United States

The Spotted Headstander (*Chilodus punctatus*) is a species of omnivorous fish native to river basins in northern South America, including the Amazon River basin. The history of invasiveness for *Chilodus punctatus* is uncertain. One report of an introduction was found but could not be verified as an introduction to the wild and the record had no detailed information. *C. punctatus* has been in trade in the United States since at least 1992 with no introductions in the wild. There are records of this species being in trade in Singapore and China as well but no information on the volume of trade. The climate match is low; the Climate 6 score was 0.003. Florida had a high climate match at the state level. The certainty of assessment is medium. The overall risk assessment category is uncertain.

Assessment Elements

- **History of Invasiveness (Sec. 3): Uncertain**
- **Climate Match (Sec. 6): Low**
- **Certainty of Assessment (Sec. 7): Medium**
- **Remarks/Important additional information:** This species is in trade in the United States and other countries.
- **Overall Risk Assessment Category: Uncertain**

9 References

Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in Section 10.

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- Youguang, Y. 2014. Developing monitoring tools for tomorrow's invasives: species lists, DNA barcodes, and images for ornamental fish. Doctoral dissertation. National University of Singapore.

10 References Quoted But Not Accessed

Note: The following references are cited within quoted text within this ERSS, but were not accessed for its preparation. They are included here to provide the reader with more information.

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